Preliminary Study of Wind Plant Performance In Zones D & E

For Discussion Purposes Only

6/16/2008

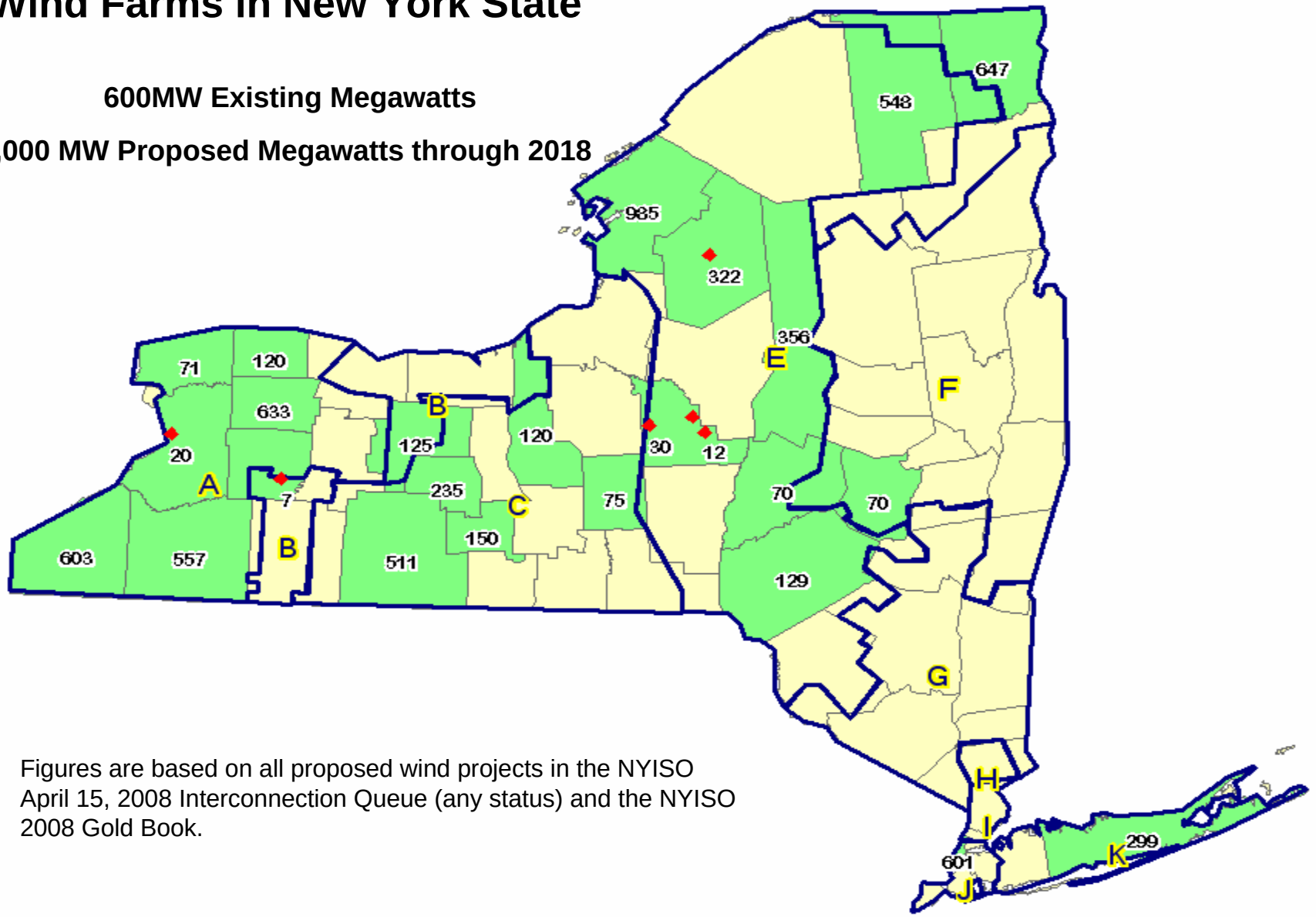
Background

- Total wind generation plants in the NYISO interconnection queue now exceeds 8000 MW
- NYISO is in the midst of updating the 2005 wind study to evaluate higher penetration of wind plants and a geographical distribution different from the initial study.
- Initial evaluations and review of SRIS and TO studies has identified the potential for transmission limitations due to concentration of wind projects in specific locations.
- Based on MWs and location of wind generation in the queue, lack of transmission may restrict future energy deliveries from wind plants in various localities especially Zones D & E.
- These initial evaluations resulted in the NYISO accelerating its study efforts by conducting a preliminary study of transmission limitations for wind plants in Zones D & E to qualify the scale of the potential system constraints.

Wind Farms in New York State

600MW Existing Megawatts

8,000 MW Proposed Megawatts through 2018

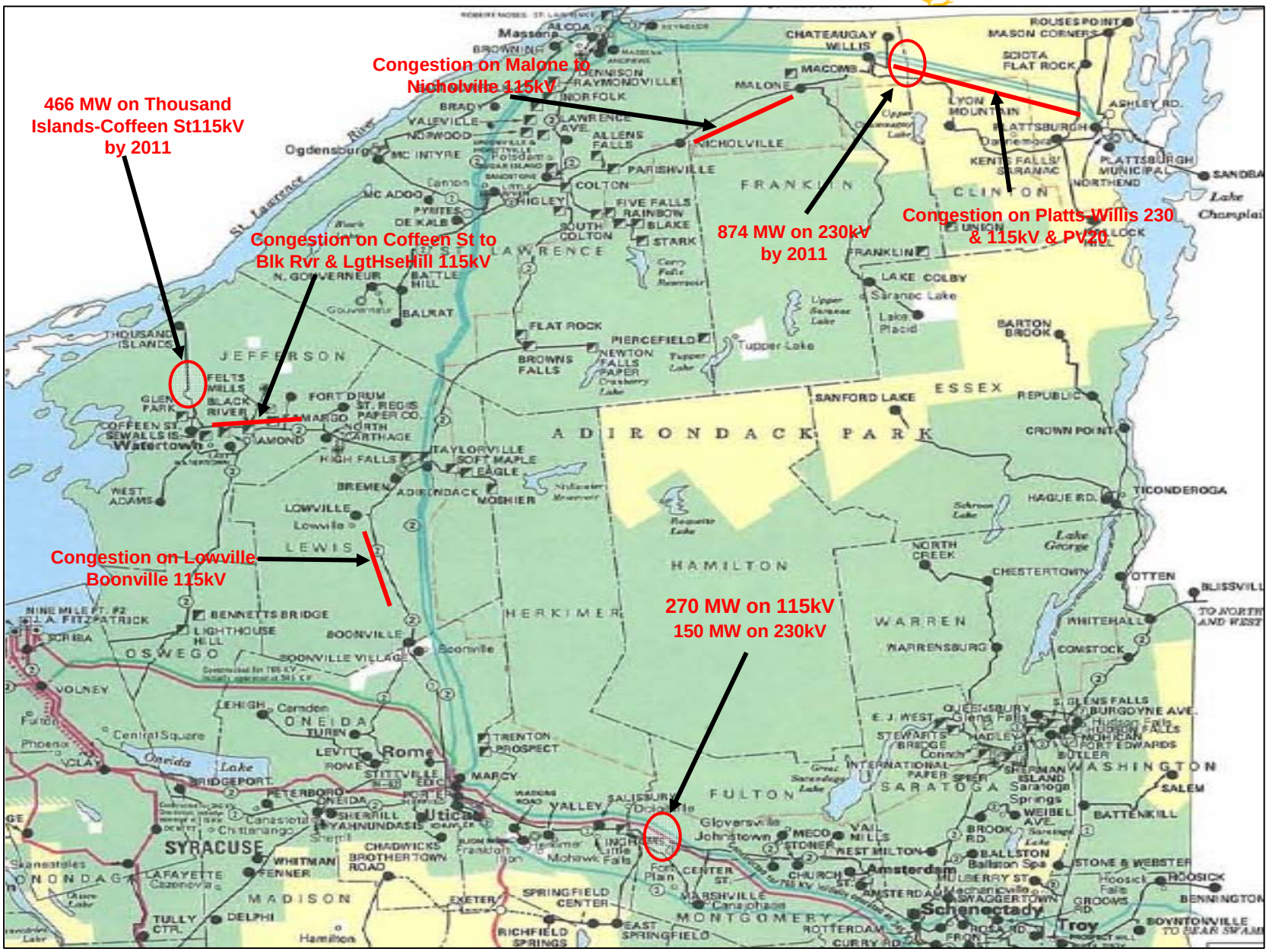


Figures are based on all proposed wind projects in the NYISO April 15, 2008 Interconnection Queue (any status) and the NYISO 2008 Gold Book.

Methodology

- Market Simulations using ABB's GridView
  - *SCUC/SCED model based on the marginal cost of individual units in the NY system*
- Wind Scenarios in Zones D & E
  - *Perfect Wind Forecast*
  - *Single Profile for all locations*
  - *Three level of Injection: 1200MW, 2000MW, and 2500MW*
- Boundary Conditions
  - *Historical 2006 actual NYISO Interchange assumed*

Constraint/Congestion Locations



Key Observations

- Interconnection point of wind plant plays major role in the amount of wind plant MWs that can be integrated before significant transmission limitations are encountered:
  - *Thousand Islands and Plattsburgh locations exhibited the most potential for wind plants to impacted by transmission limitations*
  - *Wind resource management will be critical to integrating significant amounts of wind while maintaining system reliability*
  - Preliminary study indicates need for wind energy management - e.g., forecasting, scheduling and real-time dispatch.
- Transmission limitations will need to be addressed to reduce wind plant dispatch constraints

NEW YORK INDEPENDENT SYSTEM OPERATOR

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